

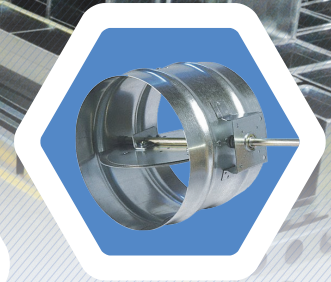
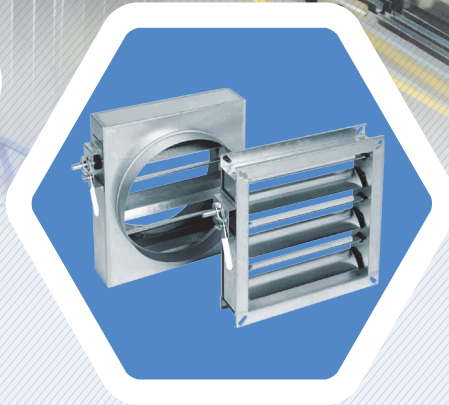


Volume Control Dampers

VCD CATALOG REV 00
January 2026



**Assure
Success
with
Customer
Together**



ABOUT US

FMC Metal Factory, founded in 2021 in the city of Jeddah, for its Excellence, Engineering, Professionalism, and Experience in the field of fabrication of HVAC duct and its Accessories. The company has been a forerunner in the Construction field with his vast experience, commitment, adoption of new technologies and challenges by emerging as one of a key player. It offers a wide range of services for Supply, Installation, Testing and Commissioning in HVAC field. The group is leading under the supreme guidance of Mr. Mohamed Abdul Rahman Farhat, who has a long life experience in the Saudi market.

Vision

Our ambition is to amplify the presence of FMC as a recognized company in the field of construction. We aspire to extent our professional services abroad in the coming years.

Mission

Form valuable long-term relationships with our clients and partners.

Manage large and complex projects.
Be a reliable company.

Compete successfully in the Construction market of the region with high efficiency, professionalism and honesty in order to maintain, our outstanding reputation.

Objective

Our aim is to enhance the lifestyle of the communities we serve through consistent, timely, efficient and added value delivery of engineered, innovative, and tailor-made technology solutions that never fails to exceed expectations

Commitment

Constantly strive to ensure that amidst all the projects exists a great deal of passion and commitment to provide quality services and to deliver clients satisfaction.

Maintain leadership in project management capability.

Provide an open and flexible approach towards the needs of our clients by listening and respecting their views and by being ahead of emerging trends.

Deliver superior value through our consistent implementation of advanced methods and state of the art solutions.

Our Team

FMC's work force is the main asset which represent and implement all projects in professional manors due to the on going training programs that we provide to our, head office employees, engineers, supervisors, technicians, drivers, labors and all of our working force whom reflect their professions on sites.

OUR PRODUCTS MAINTAINING THE HIGHEST INTERNATIONAL STANDARDS.

INTRODUCTION

FMC offers a complete range of **Volume Control Dampers** designed to regulate and balance airflow in HVAC duct systems. The product range includes **three models** engineered to suit different duct configurations and installation requirements, while delivering consistent and reliable airflow control.

All models are designed for use in **commercial and industrial ventilation systems** and are available with **manual or motorized operation**.

- **VDR – Rectangular Volume Control Damper**
Designed for rectangular duct systems, providing stable airflow regulation and ease of installation.
- **VDS – Rectangular Volume Control Damper with spigot**
Suitable for round duct applications where compact design and uniform airflow control are required.
- **VDC – Round Volume Control Damper**
Engineered for round duct systems, offering efficient airflow control with low pressure loss.

Description

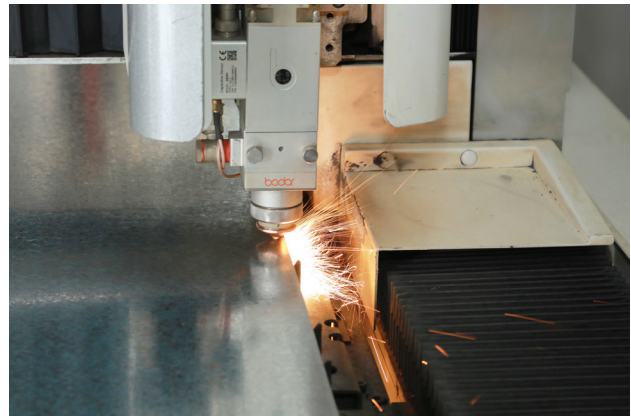
The Volume Control Damper is designed for airflow regulation and balancing in rectangular HVAC duct systems. It provides reliable and positive airflow control for supply and return air applications.

Key Features

- Designed for **rectangular and round ductwork**
- Provides accurate **airflow balancing**
- Suitable for **manual or motorized operation**
- Robust construction for long service life
- Smooth blade movement for stable airflow control
- Compatible with commercial and industrial HVAC systems

Typical Applications

- Supply and return air ducts
- Air balancing in ventilation systems
- Mechanical rooms and air distribution network



MODEL VDR - RECTANGULAR VOLUME CONTROL DAMPER

Construction Details

Material	Galvanized Steel, Black Steel, Stainless Steel
Frame Thickness	1.0 – 2.0 mm (1.2mm Default)
Blade Thickness	1.0 – 2.0 mm (1.2mm Default)
Blade Type	3V
Round Shaft Size (Default)	Ø 1/2 inch (12.5 mm)
Square Shaft Size (Optional)	Ø 1/2 inch (12 mm)
Bearings	Self-Lubricating Bronze Plastic, Stainless Steel (Optional)
Linkage Location	Side Mechanism
Blade Action	Parallel (Default) / Opposed (Optional)
Driver	Manual Quadrant or Actuator

Size Limitations

- **Minimum Size:** 100 × 100 (4x4 inch)
- **Maximum Size:** Single section: 1000 × 1828mm (40 × 72 inch)
Multiple sections: 6000 × 4500 (240 × 180 inch)

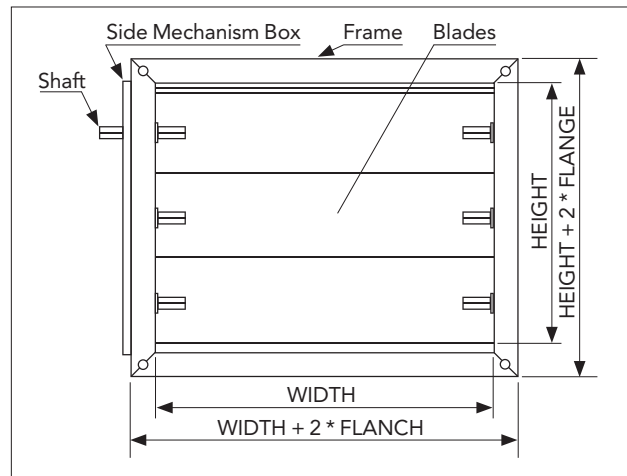
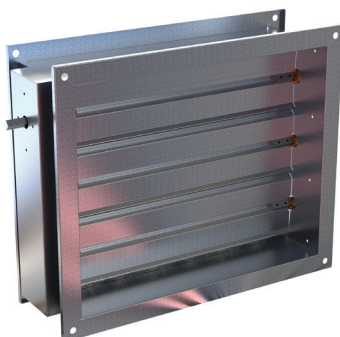
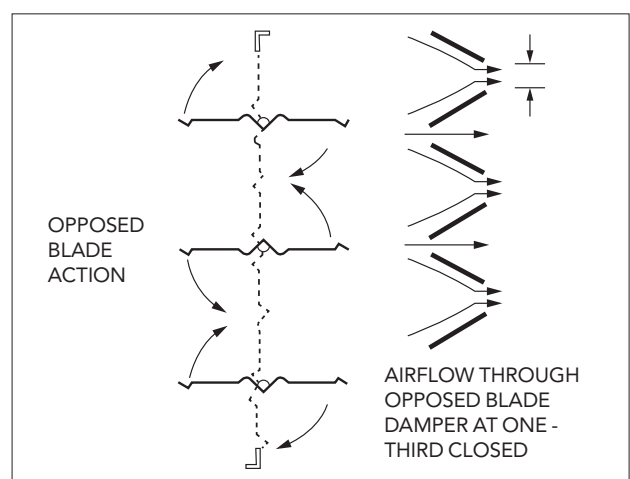
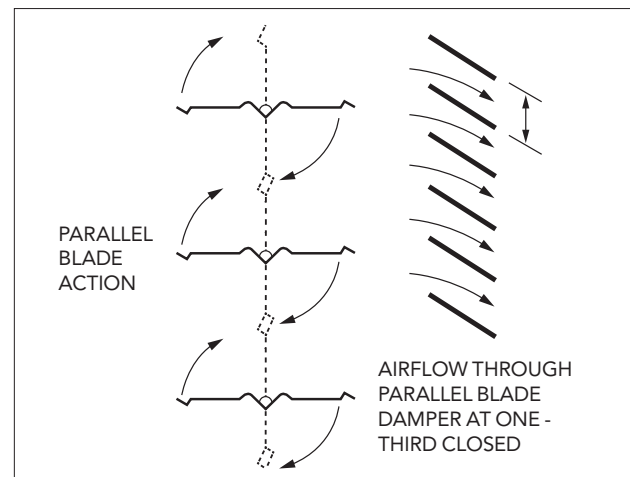


Figure: Blades Actions options (Paraller is Default)

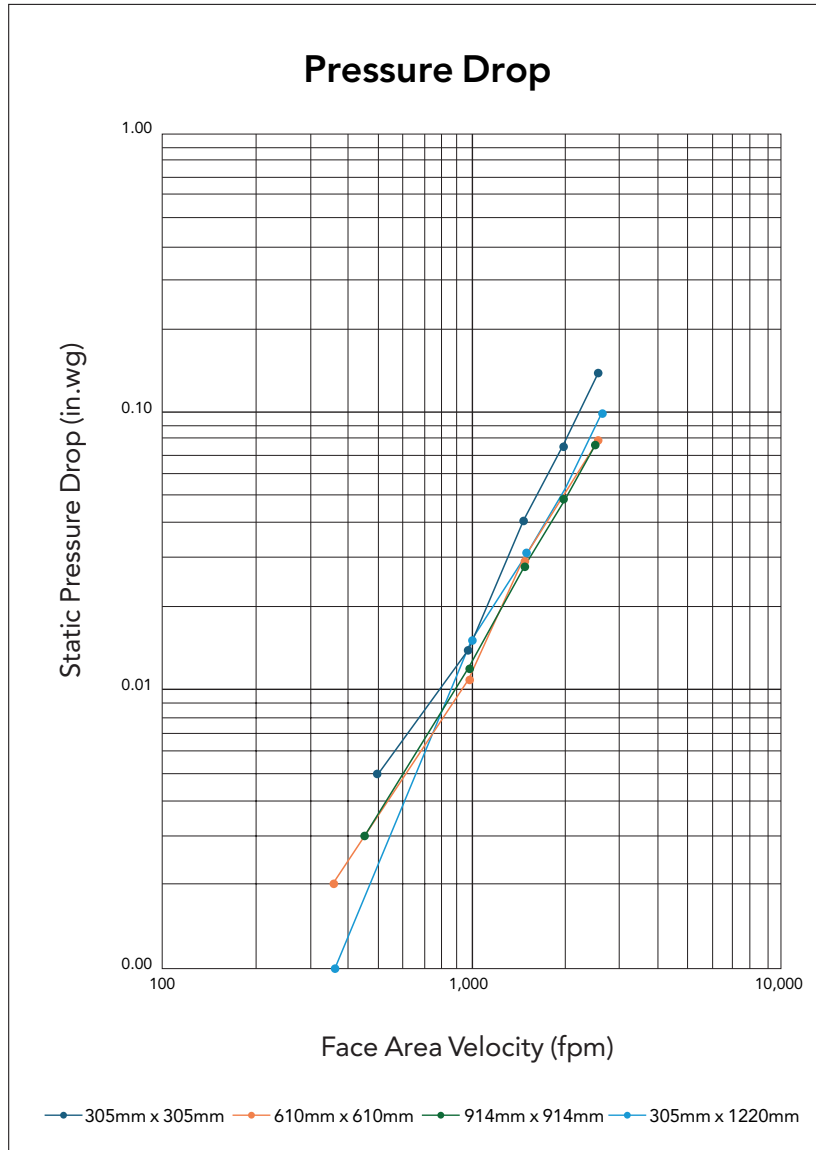


Materials Used for VCD (Casing & Blades):

- **Galvanized Steel** : (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel** : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

VDR MODEL - AIR PERFORMANCE (Pressure Drop)

VDR Air Performance Testing is performed in accordance with Test Method as per ANSI / AMCA Standard 500-D (Pressure Drop), Figure 5.3 Duct Upstream and Downstream at standard air density.



305mm x 305mm

Velocity (fpm)	ΔPD (in. wg)
2562	0.14
1972	0.08
1478	0.04
975	0.01
496	0.005

610mm x 610mm

Velocity (fpm)	ΔPD (in. wg)
2543	0.08
1971	0.05
1475	0.03
978	0.01
357	0.002

914mm x 914mm

Velocity (fpm)	ΔPD (in. wg)
2498	0.08
1979	0.05
1477	0.03
987	0.01
450	0.003

305mm x 1220mm

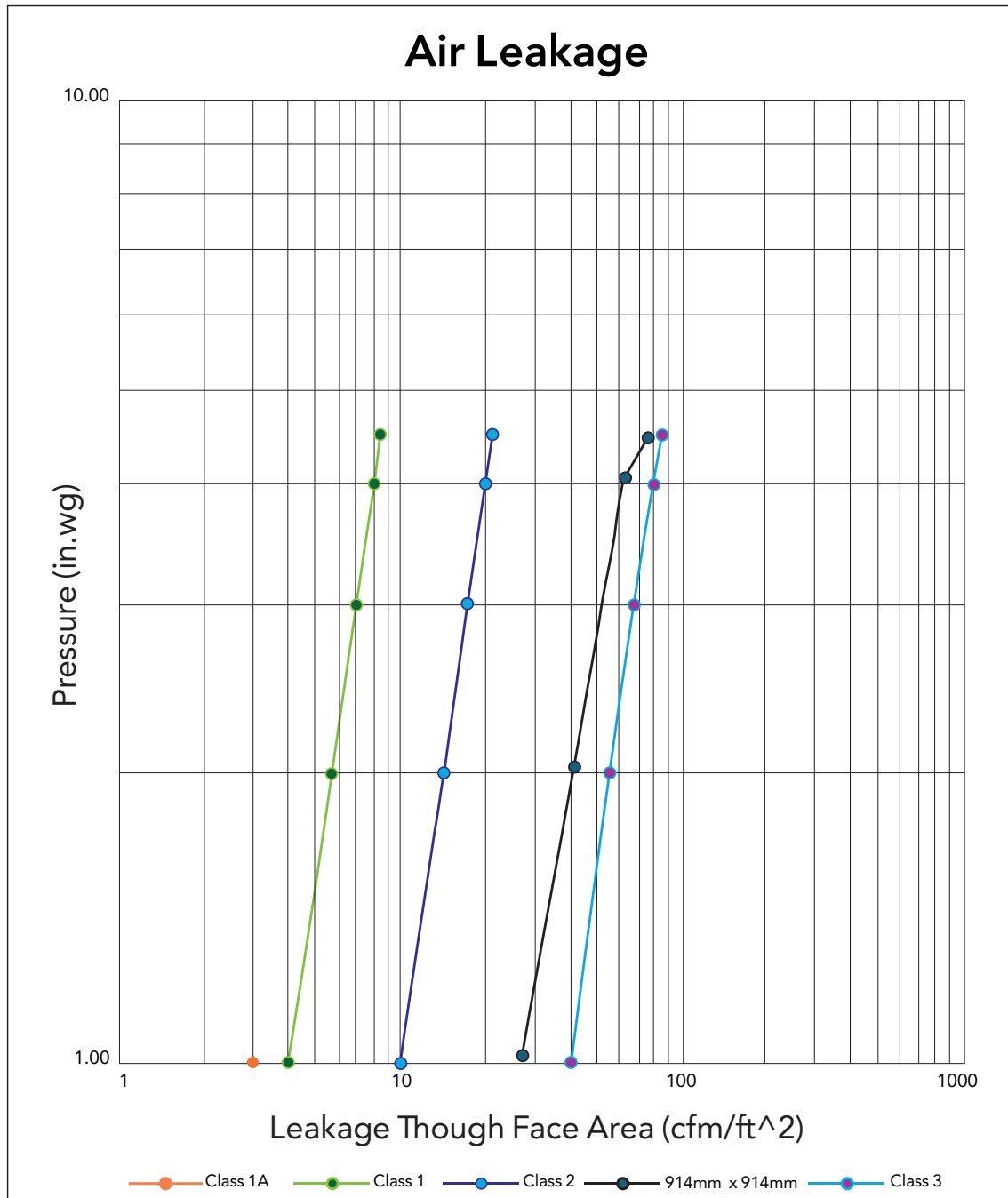
Velocity (fpm)	ΔPD (in. wg)
2635	0.10
2007	0.05
1500	0.03
999	0.02
364	0.001



Mohammad A. Farhat Co. For Industry certifies that the VDR shown herein is licensed to bear the AMCA Certified Ratings Program seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to Air Performance Ratings.

VDR MODEL - AIR LEAKAGE

VDR Air Leakage Testing is performed in accordance with Test Method as per ANSt / AMCA Standard 500-D (Leakage), Figure 5.4 Alternate at standard air density, Applied Torque 3.7 in-lbs./ft² (4.5 N-m/m²).



* This Damper Certified for Air Performance Only (Pressure Drop)

**Materials
Used for VCD
(Casing &
Blades):**

- **Galvanized Steel** : (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel** : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

MODEL VDS - RECTANGULAR VOLUME CONTROL DAMPER WITH ROUND SPOGIT

Construction Details

Material	Galvanized Steel, Black Steel Stainless Steel
Frame Thickness	1.0 – 2.0 mm (1.2mm Default)
Blade Thickness	1.0 – 2.0 mm (1.2mm Default)
Blade Type	3V
Round Shaft Size (Default)	Ø 1/2 inch (12.5 mm)
Square Shaft Size (Optional)	Ø 1/2 inch (12 mm)
Bearings	Self-Lubricating Bronze, Plastic, Stainless Steel (Optional)
Linkage Location	Side Mechanism
Blade Action	Parallel (Default) / Opposed (Optional)
Driver	Manual Quadrant or Actuator

Size Limitations

- **Minimum Size:** 100mm (4 inch)
- **Maximum Size:** Single section: 1828mm (72 inch)

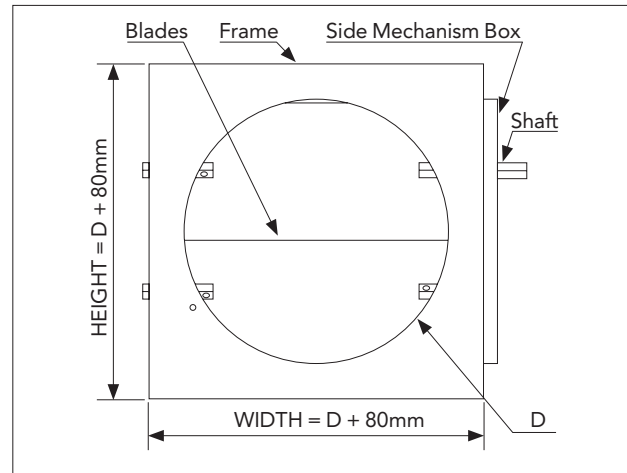
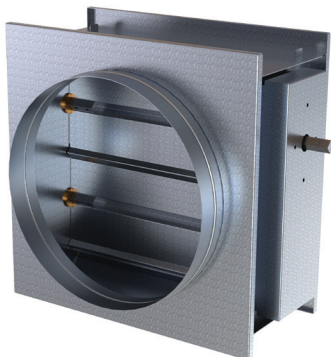
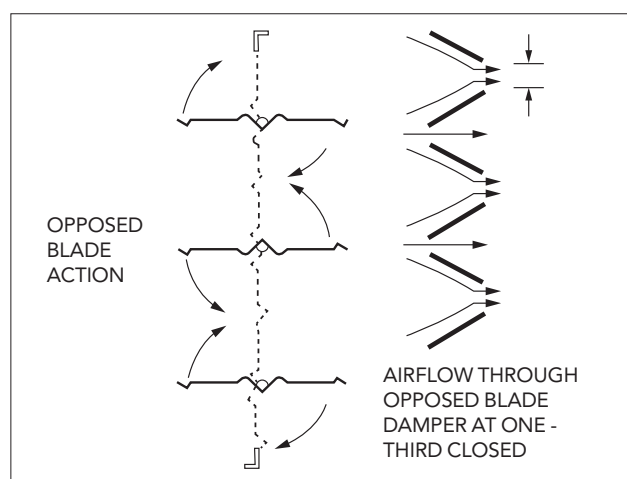
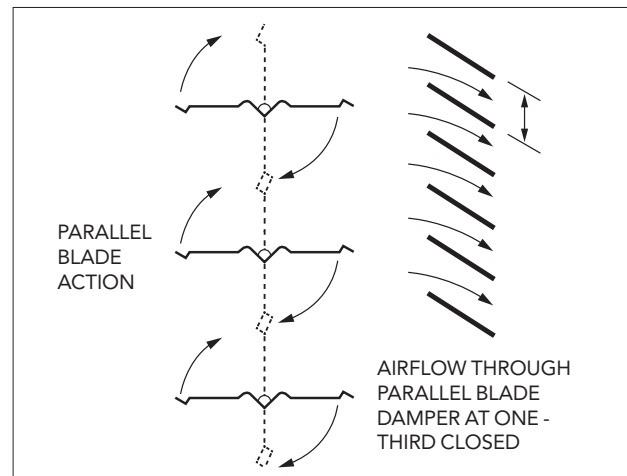


Figure: Blades Actions options (Paraller is Default)

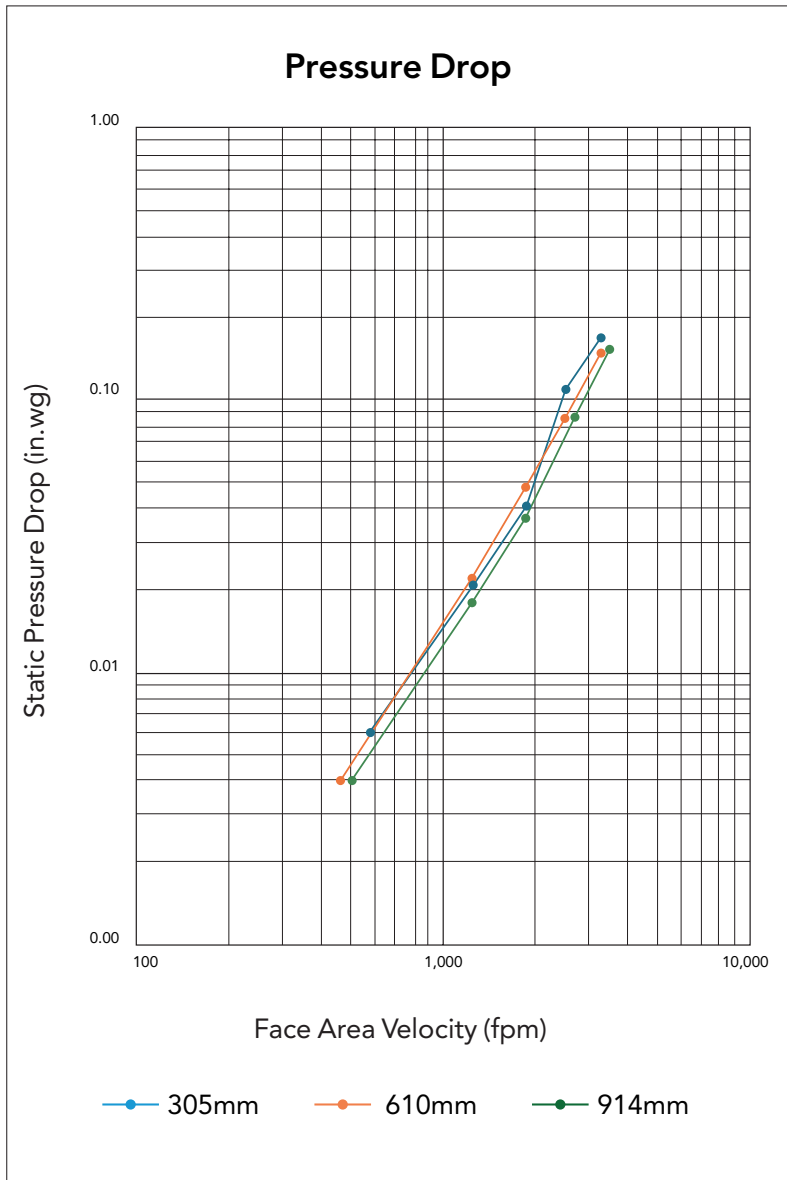


Materials Used for VCD (Casing & Blades):

- **Galvanized Steel** : (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel** : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

VDS MODEL - AIR PERFORMANCE (Pressure Drop)

VDS Air Performance Testing is performed in accordance with Test Method as per ANSI / AMCA Standard 500-D (Pressure Drop), Figure 5.3 Duct Upstream and Downstream at standard air density.



305mm	
Velocity (fpm)	ΔPD (in. wg)
3280	0.17
2520	0.11
1883	0.04
1257	0.02
582	0.006

610mm	
Velocity (fpm)	ΔPD (in. wg)
3283	0.15
2516	0.09
1882	0.05
1250	0.02
463	0.004

914mm	
Velocity (fpm)	ΔPD (in. wg)
3481	0.15
2712	0.09
1870	0.04
1251	0.02
505	0.004



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Materials Used for VCD (Casing & Blades):

- **Galvanized Steel** : (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel** : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

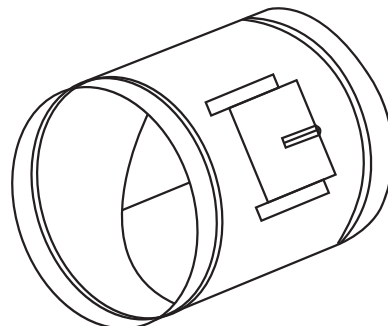
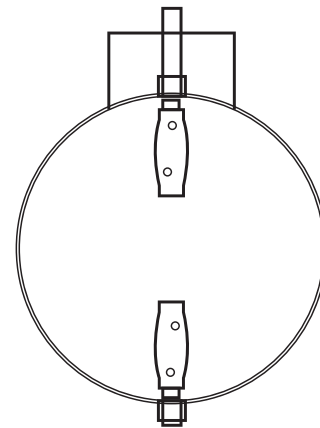
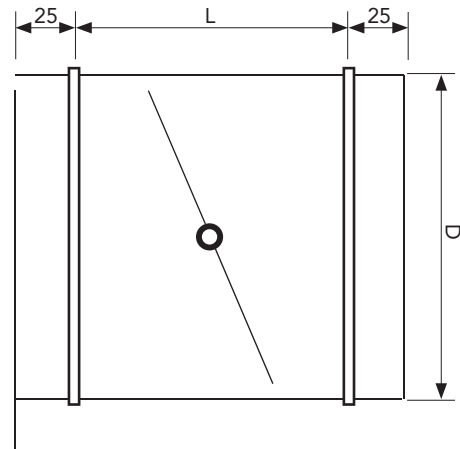
MODEL VDC - ROUND VOLUME CONTROL DAMPERS - SINGLE BLADE

Construction Details

Material	Galvanized Steel, Black Steel Stainless Steel
Frame Thickness	1.0 – 2.0 mm (1.2mm Default)
Blade Thickness	1.0 – 2.0 mm (1.2mm Default)
Blade Type	Single Blade 1V or Flat Base on Size
Round Shaft Size (Default)	Ø 1/2 inch (12.5 mm)
Square Shaft Size (Optional)	Ø 1/2 inch (12 mm)
Bearings	Self-Lubricating Bronze, Plastic, Stainless Steel (Optional)
Driver	Manual Quadrant or Actuator

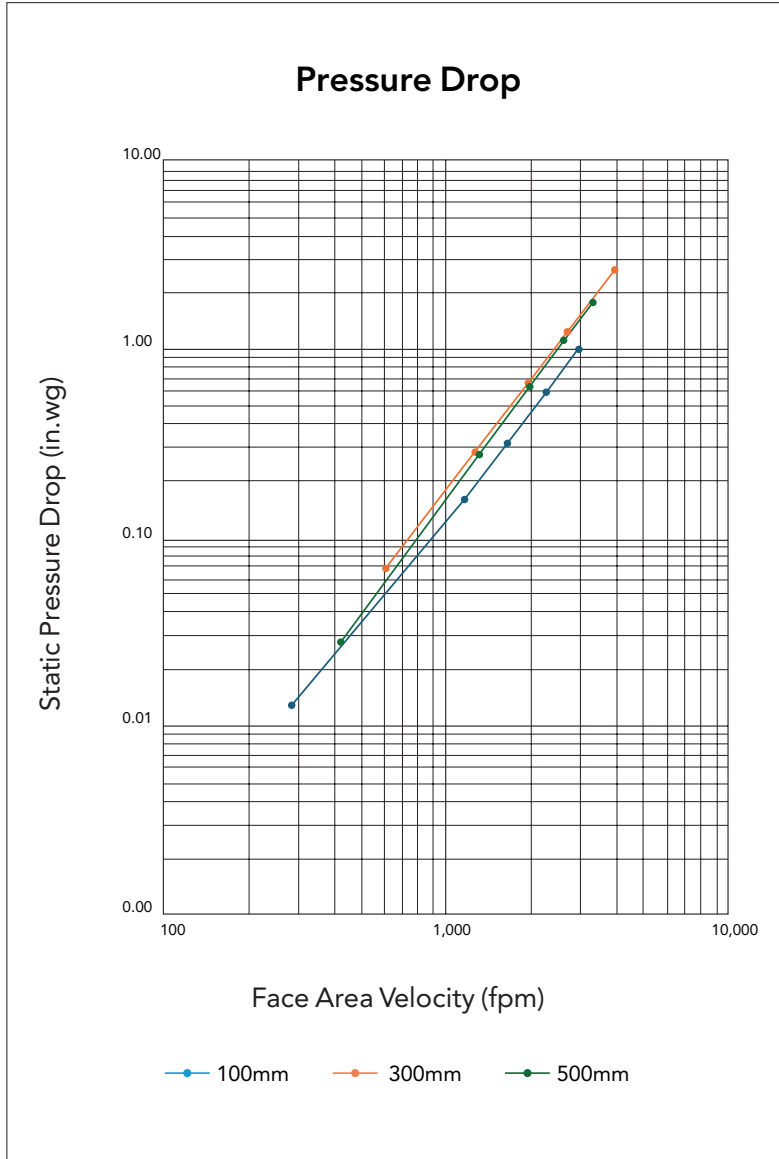
Size Limitations

- **Minimum Size:** 100mm (4 inch)
- **Maximum Size:** Single section: 500mm (20 inch)



VDC MODEL - AIR PERFORMANCE (Pressure Drop)

VDC Air Performance Testing is performed in accordance with Test Method as per ANSI / AMCA Standard 500-D (Pressure Drop), Figure 5.5 Duct Upstream and Downstream at standard air density.



100mm	
Velocity (fpm)	ΔPD (in. wg)
2945	1.02
2249	0.60
1661	0.32
1164	0.16
285	0.01

300mm	
Velocity (fpm)	ΔPD (in. wg)
3944	2.66
2680	1.25
1948	0.67
1265	0.29
609	0.07

500mm	
Velocity (fpm)	ΔPD (in. wg)
3287	1.80
2608	1.13
1954	0.63
1301	0.28
424	0.03



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**Materials
Used for VCD
(Casing &
Blades):**

- **Galvanized Steel** : (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel** : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

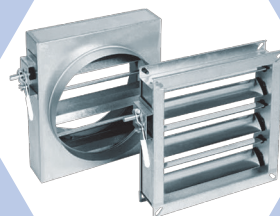
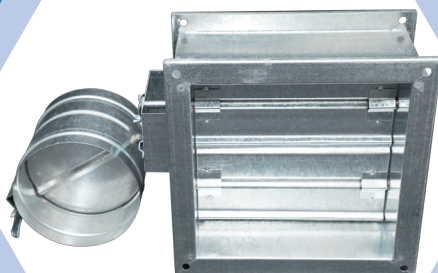
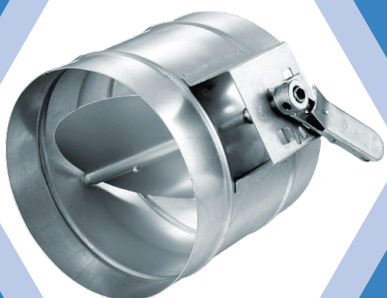
PRE- INSTALLATION NOTES AND GUIDELINES

- A. Check the schedules for proper damper locations within the building.
- B. Inspect damper for damage before installing.
- C. Dampers must be installed free from twisting or racking.
- D. DO NOT compress or stretch the damper into the opening.
- E. DO NOT lift the damper by the blades or actuator (handle damper using frame or sleeve).
- F. DO NOT install screws or fasteners in the damper that could potentially interfere with the unexposed blade linkage and prevent proper damper operation.
- G. When painting, wall-texturing, insulating or any other foreign material is being sprayed within 5 feet of the damper, the damper must be sufficiently covered and protected.

GENERAL INSTALLATION INSTRUCTIONS

- 1. Single section control dampers as well as multiple section control damper assemblies must be installed square and free from racking or twisting. In order to ensure the damper is not racked
- 2. Determine proper location of the extended shaft coupling or jacks haft before installing the damper. Shaft must be attached to a power blade. On parallel blade units, all blades are power blades and on opposed blade units, every other blade is a power blade.
- 3. Multiple damper assemblies are not restricted to a maximum number of sections, but single section units are restricted to the maximum and minimum sizes
- 4. Damper blades, axles and linkages must operate proficiently without binding. Before system operation, all dampers should be cycled after installation to ensure proper operation. When testing multiple section dampers, all individual sections should open and close simultaneously.

NOTE: Damper blades must always be running horizontally when installing the control damper in a vertical orientation. Consult the factory if a vertical damper with vertical blades is needed.



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